

CLAIMS

What is claimed is:

CLAIMS

What is claimed is:

1. A programmable system on a chip (PSoC) boot file generation method comprising:

creating a boot template file comprising special symbolic variable names that point to configuration registers within a programmable system on a chip (PSoC);

receiving user module selections with delineation of preferred configurations and functions associated with components of said programmable system on a chip (PSoC);

generating application files automatically based upon user selections of PSoC configurations and functions; and

substituting said special symbolic variable names with actual configuration register names.

2. A programmable system on a chip (PSoC) boot file generation method OF Claim 1 further comprising automatic interrupt vector mapping which assigns the appropriate providing interrupt processing routine vector.

3. A programmable system on a chip (PSoC) boot file generation method of Claim 1 further comprising:

providing an interface for selecting applicable "user modules";
facilitating programming of desired functionality into the target device; and
executing the assembler process.

4. A programmable system on a chip (PSoC) boot file generation method of Claim 3 wherein said user module is a preconfigured function that may be based on more than one PSoC blocks that work as a peripheral on the programmable system on a chip (PSoC) target device.

5. A programmable system on a chip (PSoC) boot file generation method of Claim 3 further comprising:
viewing and modifying user module parameters including setting global parameters
specifying interconnections between the selected user modules; and
delineating the pin-out for each PSoC block making a connection between the software configuration and the hardware of the target device.

6. A programmable system on a chip (PSoC) boot file generation method of Claim 1 further comprising emulating the target device using an in-circuit emulator for debugging.

7. A programmable system on a chip (PSoC) boot file generation method of Claim 3 further wherein the emulator allows the target device to be tested in a hardware environment while device activity is viewed and debugged in a software environment.

8. A programmable system on a chip (PSoC) boot file generation method of Claim 3 further comprising:
updating existing assembly-source and C compiler code are updated for device configurations; and
generating application program interfaces (APIs) and interrupt service routines (ISRs).

9. A programmable system on a chip (PSoC) boot file generation method of Claim 3 wherein the assembler operates on an assembly-language source to produce executable code.

10. A programmable system on a chip (PSoC) boot file generation method of Claim 9 further comprising compiling and building code into an executable file.

11. A programmable system on a chip (PSoC) boot file generation method of Claim 9 further comprising linking the programmed functionalities of the source files including device configuration.

12. A circuit comprising:

a bus for communicating data;

a microprocessor for processing data, said microprocessor coupled to said bus;

a programmable system on a chip (PSoC) functional component coupled to said bus, wherein said PSoC functional component includes a plurality of functional blocks programmable to provide a plurality of functions and configurations; and

a memory for storing configuration information including information associated with a boot file, said memory coupled to said bus.

13. The circuit of Claim 12, wherein said boot file is created utilizing a template comprising symbolic register names that are substituted by the actual register name.

14. The circuit of Claim 12, wherein a component of said circuit is programmable according to a configuration information stored in said memory.

15. A PSoC boot file creation method comprising:

assigning variable symbolic registers names to a user module;

establishing an association between the variable symbolic register names and actual PSoC configuration register names; and

performing a symbolic substitution is performed to replace the variable symbolic registers names with actual PSoC configuration register names.

16. The PSoC boot file creation method of Claim 15 further comprising loading the boot file on a PSoC device.

17. A PSoC boot file creation method of Claim 15 further comprising utilizing a boot template to establish the association between the variable symbolic registers names and actual PSoC configuration register names.

18. A PSoC boot file creation method of Claim 17 further utilizing a boot template to perform symbolic substitution in which the variable symbolic registers names are replaced with the actual PSoC configuration register names.

19. A PSoC boot file creation method of Claim 15 wherein the boot file is regenerated every time device configurations change and application files are generated.

20. A PSoC boot file creation method of Claim 15 wherein the boot file is created and loaded on a PSoC device by a PSoC design tool.